PRACTICAL-6

AIM:

Consider an example of declaring the examination result. Design three classes: Student, Exam, and Result. The Student class has data members such as those representing rollNumber, Name, etc. Create the class Exam by inheriting Student class. The Exam class adds fields representing the marks scored in six subjects. Derive Result from the Exam class, and it has its own fields such as total marks. Write an interactive program to model this relationship.

Program Code:

```
print("22DCE006\n")
class Student:
    def __init__(self, roll_number, name):
        self.roll_number = roll_number
        self.name = name

    def display(self):
        print(f"Roll Number: {self.roll_number}")
        print(f"Name: {self.name}")

class Exam(Student):
    def __init__(self, roll_number, name, marks):
        super().__init__(roll_number, name)
        self.marks = marks

    def display_marks(self):
        print("Marks:")
        for subject, marks in self.marks.items():
            print(f"{subject}: {marks}")

class Result(Exam):
    def __init__(self, roll_number, name, marks, total_marks):
        super().__init__(roll_number, name, marks)
        self.total_marks = total_marks

    def display_result(self):
        self.display()
        self.display_marks()
        print(f"Total Marks: {self.total_marks}")
        print("Percentage obtained by the student is : " + str(self.total_marks/6))

# Interactive program
```

```
roll_number = input("Enter Roll Number: ")
name = input("Enter Name: ")

marks = {}
subjects = ["Subject1", "Subject2", "Subject3", "Subject4", "Subject5", "Subject6"]
for subject in subjects:
    marks[subject] = float(input(f"Enter marks for {subject}: "))

total_marks = sum(marks.values())

result = Result(roll_number, name, marks, total_marks)
result.display_result()
```

Output:

```
PS D:\Probin's Work\Python> python new.py
22DCE006

Enter Roll Number: 31
Enter Name: david
Enter marks for Subject1: 95
Enter marks for Subject2: 97
Enter marks for Subject3: 98
Enter marks for Subject4: 99
Enter marks for Subject5: 93
Enter marks for Subject6: 96
Roll Number: 31
Name: david
Marks:
Subject1: 95.0
Subject2: 97.0
Subject3: 98.0
Subject4: 99.0
Subject5: 93.0
Subject6: 96.0
Total Marks: 578.0
Percentage obtained by the student is : 96.33333333333333
PS D:\Probin's Work\Python>
```

Conclusion: From this practical we learned the key concepts such inheritance, polymorphism, encapsulation, and the use of interactive programming techniques. With these concepts we can help in designing and implementing effective code structures.

Signature:

Grade:

Remarks by the Staff: